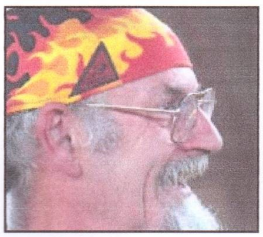
This two page article was taken from the HOT IRON NEWS, and show some nice joinery work. Mostly pictures but you can get some great ideas from them. Enjoy...

Blacksmith Week Demonstration: Four Hour Gate by Terry Carson and Darryl Nelson

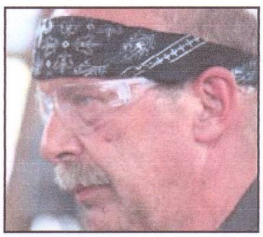
photos by John Graham



Terry Carson, photo taken at the start of the demo

Back in the day, they were poor struggling artists wanting to go to every blacksmith conference they could. In their pursuit of the means and the way they found inspiration from something Russ Swider, of the Southwest Blacksmith Association told them. "If you can come up with a good demo we will pay for your travel expenses."

Foolishly, with the hubris of strong minded, extremely confident young men, they came up with the three hour garden gate using all traditional joinery. Undaunted by the discouraging words of master smith Francis Whitaker (to paraphrase, "not possible"), they set about designing the project. New Mexico was the first demonstration, and within four years they had done seven gate demos. A 1984 gate was put into the National Ornamentation Metal Museum collection.



Darryl Nelson, photo taken near the end of the demo.

It has been many years since Terry and Darryl have done this demonstration. With the wisdom and calm of experience, the three hour gate has become a four hour gate. Seeing them build it in four hours, it is clear that even with the added time it is quite a feat to get it done. The tasks were divided between them, and each worked steadily and intently building the pieces of the gate, appearing as a beautiful choreography. Assembly of the gate was coordinated perfectly, all the parts necessary and properly fit. A feat of skill to be witnessed, the Four Hour Gate is real, Blacksmith Week 2014... we were there.

* photos by editor

Forging A Rectangular Pass-Through.

DON SCHAD.

It has been said that only a blacksmith can pass a one-inch bar through a one-inch bar. While other metalworkers might want to make an argument over this point, pierced joinery does highlight one very unique and distinctive feature of forge work. In the fall of 2012, I worked on a project during a traditional joinery class at the Campbell Folk School that required eight rectangular pass-throughs. Below is the process that I used and found effective to create the necessary pass-throughs for my project. In particular this process is for passing a rectangular bar through stock of the same size.

The first step in creating a pass-through is to create a hole which will allow the walls of the bar to be thick enough to ensure that the amount of material in the cross-section of the hole is the same as the unmodified bar. The perimeter of this hole should be equal to the perimeter of the bar which is to be passed through it. To obtain this length the punched (or slit-cut) hole will be long and narrow, requiring that it be opened up and reoriented to accommodate the bar which will pass through it. In order to maintain equal material on each side of the hole, it should also be centered in the width of the bar.

Mark the stock with a punch mark in the center of the material at the location where you want one end of the slot to start. As an aid in keeping the slot parallel to the edges, a second mark at the mid-point of the slot can be helpful as a guide when placing the punch. Additionally, a very light punch at a low heat can be used to verify that everything is in position. The low heat and lack of scale allows the punch marks to be readily located, and a shallow punch mark can be corrected if necessary.

FIG 1. - DRIVE THE SLOT-PUNCH UNTIL YOU CAN FEEL THE ANVIL RESISTANCE AND STOP, COOLING THE PUNCH EVERY COUPLE OF HITS

Heat the material to a yellow heat and engage the end of the slot-punch in the punch mark where the slot is to start. Bring the punch square to the material, taking care that the punch is exactly parallel to the long axis of the material being punched and properly centered. Drive the slot-punch until you can feel the anvil resistance and stop, cooling the punch every couple of hits *(figure 1)*. Do not drive too far as you can easily bend or mushroom the end of your tool. Having reached the anvil, flip the stock over and locate the slot from the back side by looking for the flat spot/line on the back *(figure 2)* and back punch, breaking the slug from the bar. Move to the hardy-hole or bolster and clear the slug from the slot *(figure 3)*.

FIG 2. - FLIP THE STOCK OVER AND LOCATE THE SLOT FROM THE BACK SIDE BY LOOKING FOR THE FLAT SPOT/LINE ON THE BACK

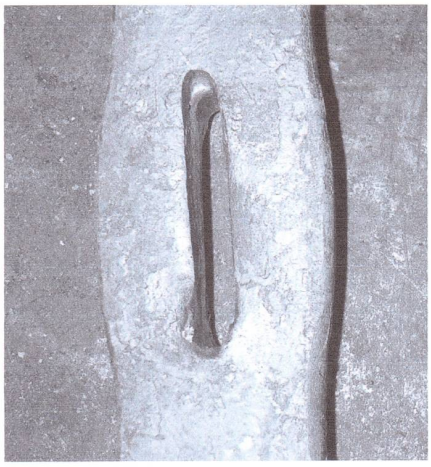


FIG 3. - MOVE TO THE HARDY-HOLE OR BOLSTER AND CLEAR THE SLUG FROM THE SLOT

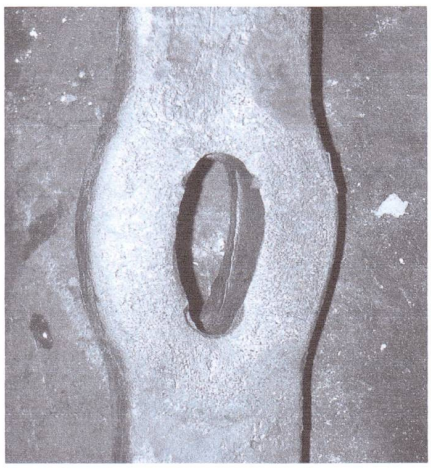


FIG 4. - UPSET THE SIDES OF THE SLOT AND CAUSE THE LONG NARROW SLOT TO TAKE ON AN OVAL AS THE SIDES MOVE OUTWARD AND THE ENDS OF THE ORIGINAL SLOT BECOME CLOSER

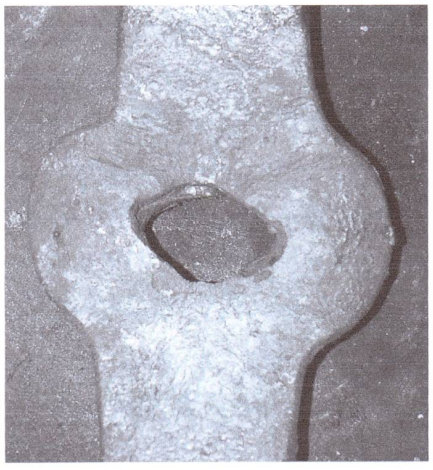


FIG 5. - IN THE PROCESS OF TRANSITIONING FROM A SLOT TO AN OVAL, THE OPENING MAY TAKE ON AN AMORPHOUS SHAPE

After the slot has been created, it needs to be transitioned from a long skinny oval to a shorter, wider rectangle, and rotated 90 degrees. To start this process, take a very high yellow heat which is localized around the slot, and drive the end of the bar back into itself as if you were upsetting at the center of a bar. This will upset the sides of the slot and cause the long narrow slot to take on an oval as the sides move outward and the ends of the original slot become closer *(figure 4)*.

In the process of transitioning from a slot to an oval, the opening may take on an amorphous shape *(figure 5)*. When this begins to happen, slightly drift the hole to round, drift-

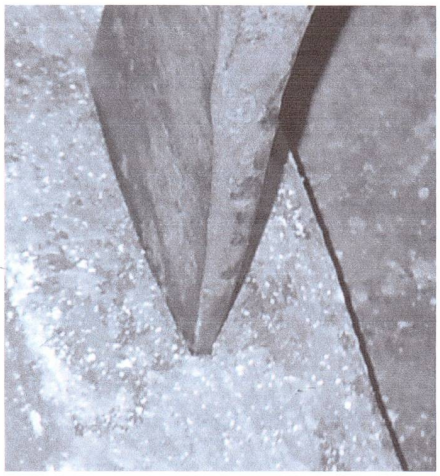


FIG 6. - SLIGHTLY DRIFT THE HOLE TO ROUND, DRIFTING ONLY THE MINIMUM REQUIRED TO OBTAIN A SMOOTH HOLE

FIG 7. - RESUME UPSETTING UNTIL THE HOLE BECOMES AN OVAL

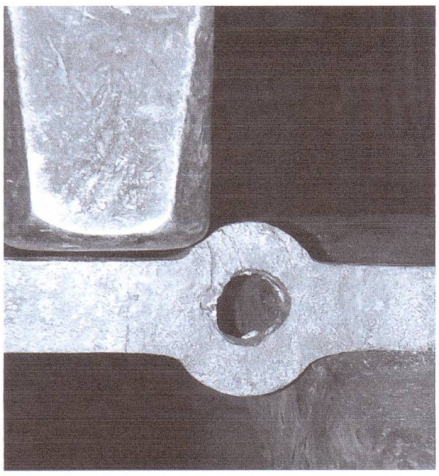


FIG 8. - CORRECTIONS CAN BE MADE BY SUPPORTING ONE SIDE OF THE BAR ON EDGE ON THE ANVIL WHILE STRIKING THE OTHER SIDE

FIG 9. - ADDITIONALLY, THE OUTSIDE CORNERS CAN BE CLEANED UP AT THIS TIME USING FULLERS OR OTHER SUITABLE TOOLING

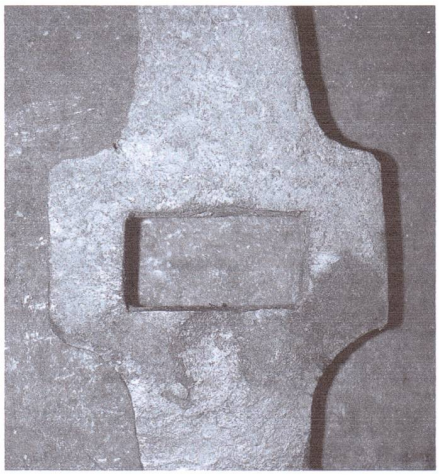


FIG 10. - DRIFT FROM BOTH SIDES AND FLATTEN ON THE ANVIL

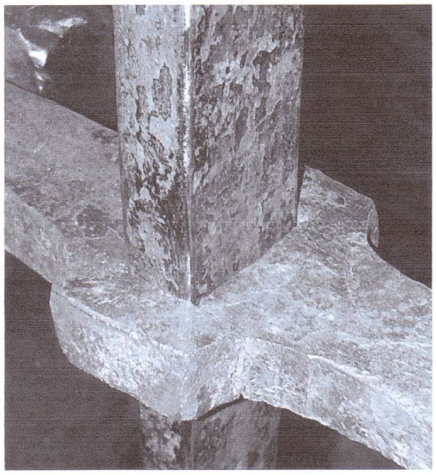


FIG 11. - YOUR PASS-THOUGH SHOULD BE READY FOR ASSEMBLY

ing only the minimum required to obtain a smooth hole *(figure 6)*. Drift from the front and back to keep the insides of the hole even. Resume upsetting until the hole becomes an oval which is smaller than the bar which is to pass through the hole in both dimensions *(figure 7)*.

If while trying to reorient the opening, the unforged bar on the far sides of the hole fall out of alignment, stop and correct as soon as possible. Corrections can be made by taking a localized heat around the opening and supporting one side of the bar on edge on the anvil while striking the other side *(figure 8)*. If the bar is really far out of alignment, inserting a mandrel and using fullers to drive the bar into alignment can be effective.

Once the hole is smaller than the drift, the outside edges should be worked, if desired. If the final drifted hole is to have flat sides on the outside instead of the rounded sides naturally produced by the upsetting/drifting, the outside edges should be forged flat before drifting. Additionally, the outside corners can be cleaned up at this time using fullers or other suitable tooling *(figure 9)*.

Once the outside edges of the bar have been shaped the hole is ready for final drifting. Take a rectangular drift and at a high heat drift to final size. Make sure that the drift is at a right-angle to the edge of the stock. Drift from both sides and flatten on the anvil *(figure 10)* and your pass-though should be ready for assembly *(figure 11)*.

Acknowledgements:

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BOOK ANNOUNCEMENT:
Award-winning Author Releases
Hydraulic Forging Press for the Blacksmith

For Additional Information Contact: Heather M. McNulty
Marketing Specialist
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FOR IMMEDIATE RELEASE

APPLE VALLEY, MN—Skipjack Press, an imprint of Finney Company, is announcing the publication and release of *Hydraulic Forging Press for the Blacksmith* by Randy McDaniel.

Award-winning author and blacksmith, McDaniel has brought together an international group of collaborators to assemble *Hydraulic Forging Press for the Blacksmith,* a useful and inspirational resource for anyone forging hot metal. McDaniel addresses the comparison between a Power Hammer and a Hydraulic Forging Press, and focuses on the full potential of the Hydraulic Press.

The Hydraulic Forging Press is becoming an increasingly important resource to blacksmith shops across the globe. It allows more creativity and detailed work when melding hot metals, which is perfect for blacksmiths, knife-makers, and even jewelers.

Hydraulic Forging Press for the Blacksmith documents the journey of McDaniel's passion for blacksmithing, which lead him to the Hydraulic Forging Press. McDaniel walks his readers through the history, usability and versatility of the press for the blacksmith. A contributing group of artists provided their work for a gallery that is featured within the book in full color.

ABOUT THE AUTHOR: McDaniel has been a blacksmith since 1972 and gained recognition for writing and illustrating *A Blacksmithing Primer, A Course in Basic and Intermediate Blacksmithing*. Blacksmiths, blacksmithing organizations, and schools around the globe are using this book to teach basic to intermediate forging. He has written articles for *Fabricator Magazine* and *The Anvils Ring Magazine*. Randy now creates all of his own tooling and dies which he uses to produce a line of unique items.

Hydraulic Forging Press for the Blacksmith was officially released on August 14, 2014 and is available through on-line and local booksellers, www.astragalpress.com or by calling SkipJack Press at 866-543-3045.

Finney Company was established in 1947 currently has over 400 proprietary publications and distributes over 5,000 quality products, enhancing the company's mission to help improve the quality of lifelong learning worldwide. For additional information about Finney Company, visit www.finneyco.com or call 952-469-6699.

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Small anvil. around 20#. Contact Caleb Gottlob 918-476-5730 or goobilton@gmail.com.

Club Coal

Saltfork Craftsmen has coal for sale. Coal is in 1-2" size pieces The coal is $140.00/ton or .07 /pound to members .**No sales to non-members.**

NW Region coal pile is located in Douglas, OK. If you make arrangements well in advance, Tom Nelson can load your truck or trailer with his skid steer loader for a fee of $10 to be paid directly to Tom. Tom has moved his skid steer and must now haul the loader to the coal pile to load you out, hence the $10 charge. You may opt to load your own coal without using Tom's loader. The coal can be weighed out at the Douglas Coop Elevator scales. Contact Tom Nelson (580-862-7691) to make arrangements to pick up a load. Do not call Tom after 9 PM!! Bring your own containers and shovels. Payment for the coal ($.07 per pound) should be made directly to the Saltfork Treasurer.

NE Region coal location: Charlie McGee has coal to sell. He lives in the Skiatook, Oklahoma area. His contact information is:
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S/C region coal location: Club coal is now available at Norman at Byron Donor's place. Call Byron to make arrangements to come by and get coal.

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$100.00 plus shipping to members.
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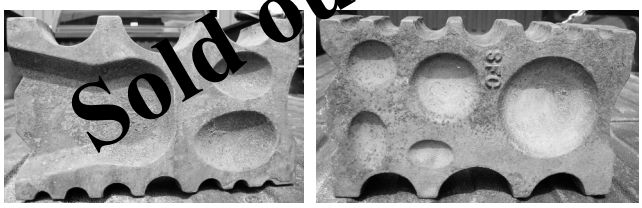

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Directions or provide a map to the meeting location along with this form.

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